

Angela Blanchette

From: JoAnn Fryer [jlf@cldengineers.com]
Sent: Tuesday, November 06, 2012 12:44 PM
To: Angela Blanchette
Cc: Ryan M. McCarthy; Kathleen J. Bassett
Subject: RE: Simpson Rd Bridge update (CLD#09-0248)
Attachments: FM2301550017D.pdf; Steel Backed Timber GR.pdf

Hi Angela –

Thank you for providing us with an opportunity to review the new report and respond. It appears that the report provided by Structures North is a thorough review of the material and provides a professional report with interesting insights and alternatives for the City to consider. There are a few items that we would like to note for the City's consideration in discussing the project and determining how to proceed:

1. Estimates – the estimates provided by CLD in our 2011 report are Expected Total Project Costs. These include the Design Engineering costs anticipated for the particular alternative, anticipated Right-of-Way costs to obtain easements needed for the construction, as well as Construction Engineering costs estimated at 15% of the construction cost. This Construction Engineering cost would cover administration of the construction contract and on-site field observation and engineering services to address issues confronted during the construction. We would recommend that any budgeting for the project include these types of costs that would be pertinent to the recommended alternative.
2. Hydraulic Capacity – Whether the intended purpose for the structure width was to control flow on the stream, the current configuration creates risk, both to the structure and the roadway (ie. the traveling public), as well as upstream properties. Per the attached excerpt from the FEMA Flood Insurance map, the backwater from the Saco River extends up Stackpole Creek to within several hundred feet of the bridge. Given this close proximity, increasing the hydraulic capacity of the crossing should not have detrimental downstream effects as water surface elevations are controlled by the much larger Saco River. As stated in all the reports, rehabilitation will not address the hydraulic capacity issue. The City may determine that the value of the structure outweighs the flooding risk.
3. Guardrail – MaineDOT does not have a standard timber rail, although FHWA has a standard, crash-tested railing system "Steel-Backed Timber Guardrail". We have used this on several rural projects, and have recently obtained quotes for another location where the prices were in the range of \$80 to \$100/LF, significantly higher than regular beam guardrail. The City could use a non-crashed tested timber system which would likely cost less (no steel rail backing), however, would need to assume liability for a non-crash tested system (which would certainly be an improvement over the existing wheel axles in regards to safety). I have attached the FHWA standard plans for this railing if you are interested.
4. Drainage – While we agree that the purpose of the dry laid structure is to allow drainage to flow through, we feel that collecting the surface water through a closed drainage system with catch basins is a safety concern. The design shown does not include curbing; however, in the winter there will be "snow curb" ie. snow banks along the railing after the plows come, which can keep storm water and/or ice melt trapped on the roadway. We would also recommend curbing to collect the storm water, rather than letting it cascade over the side of the structure.
5. Bidding qualifications – If the City decides to move forward with the rehabilitation option, we would strongly recommend that the City pursue a modified bidding process for construction contractors. This is a very unique structure and a straight low-bid solicitation will likely not provide the most qualified contractor and could become a large liability for the City. We would recommend a Qualifications Based Selection for the contractor,

and then negotiate a price (using your engineer to assist you to evaluate reasonable prices) or short-list 3 contractors from the QBS solicitation and select the low bid from the three qualified contractors.

CLD looks forward to the opportunity to continue to assist the City on this project. Please let us know if you have any questions or need any additional information.

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From: Angela Blanchette [mailto:ABlanchette@sacomaine.org]
Sent: Thursday, November 01, 2012 1:25 PM
To: JoAnn Fryer
Subject: Simpson Rd Bridge update

JoAnn,
The City made it through the hurricane with minimal damage. All gauges on the bridge are within 0.5 mm of the previous readings and the bridge is back open. Flows did not go above 3 feet and no debris was found at the upstream side of the bridge.

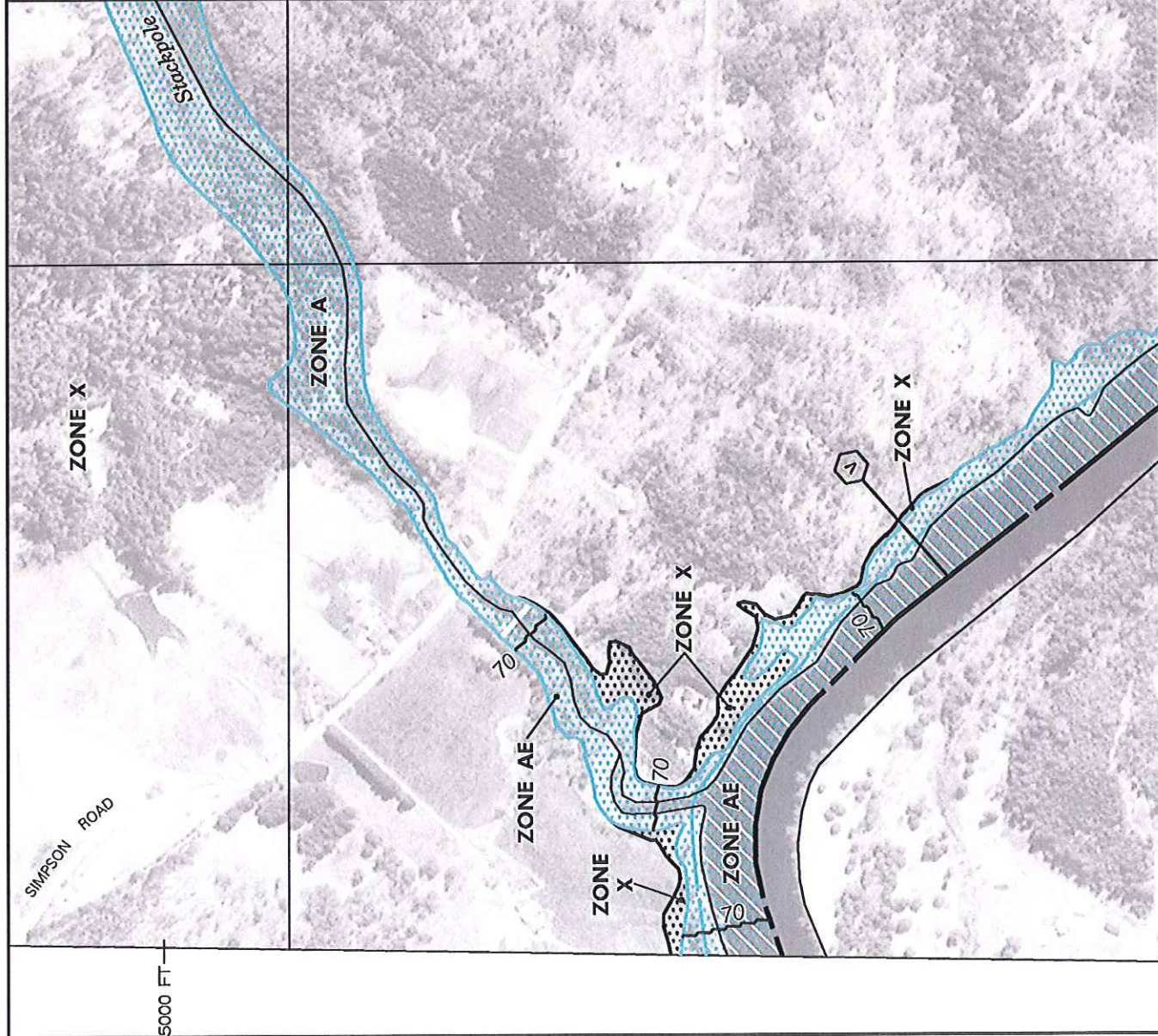
Attached you will find Structures North's report, which evaluated CLD and DeGruchy's design and estimated costs. They have also provided a "hybrid" design. I will be meeting with our Adhoc committee next week and am interested to see if you have any comments on what John Watne provided.

Thank you,
Angela Blanchette, P.E.
City Engineer
City of Saco
300 Main Street
Saco, Maine 04072
tel: 207.284.6641

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MAP SCALE 1" = 500'



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0017D

FIRM FLOOD INSURANCE RATE MAP

CITY OF
SACO,
MAINE
YORK COUNTY

PANEL 17 OF 135

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY
SACO, CITY OF

NUMBER
230155

PANEL
0017

SUFFIX
D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

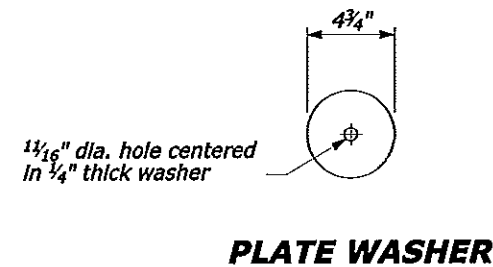
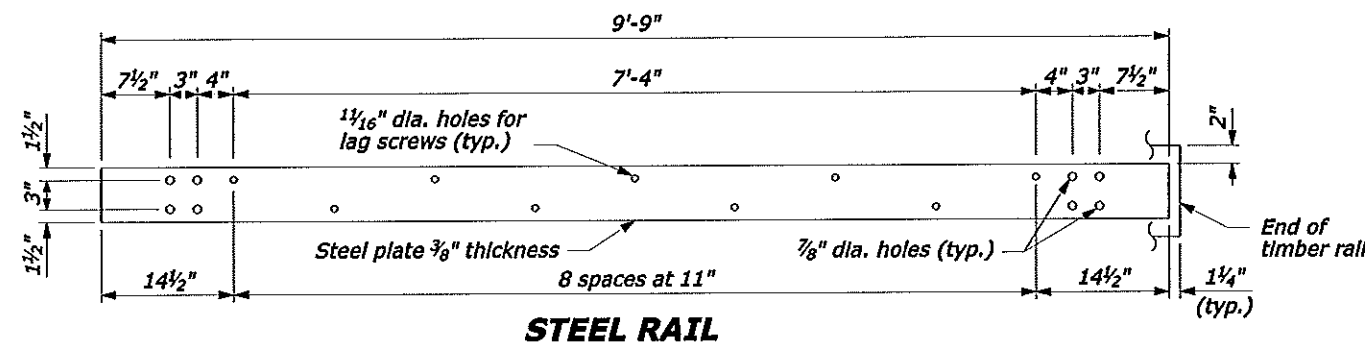


MAP NUMBER
2301550017D

MAP REVISED
JANUARY 5, 2006

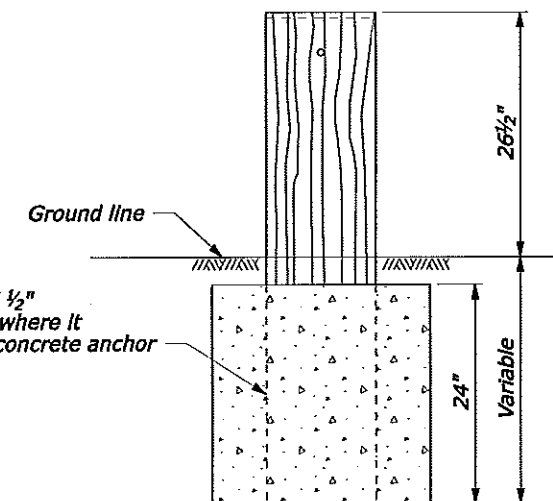
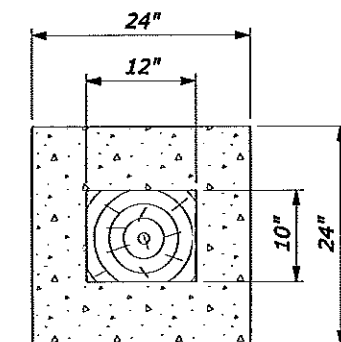
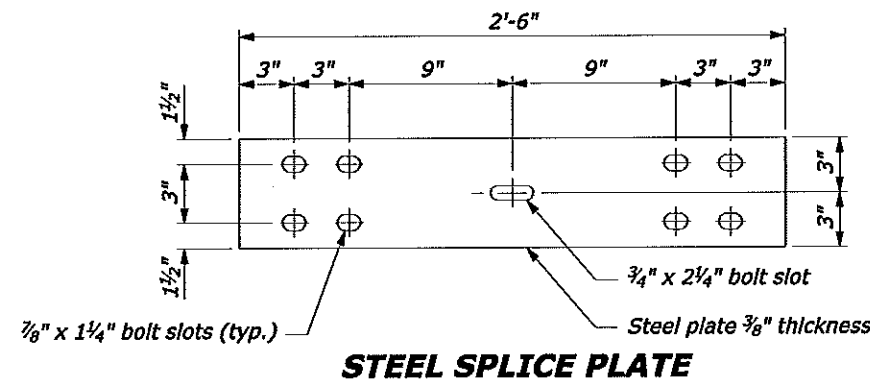
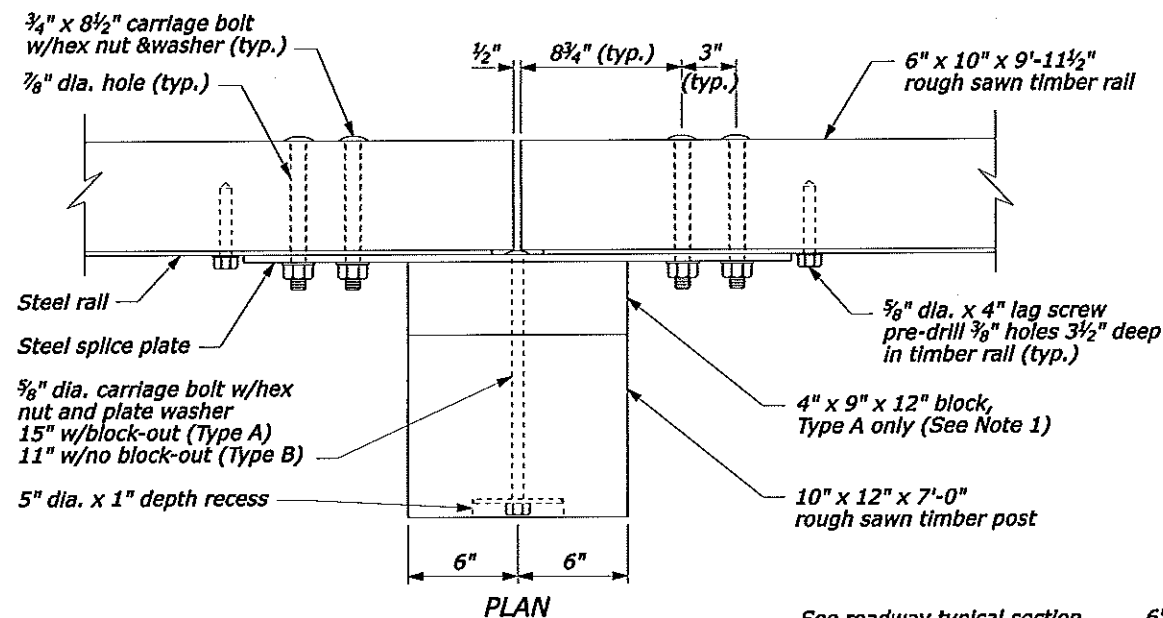
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

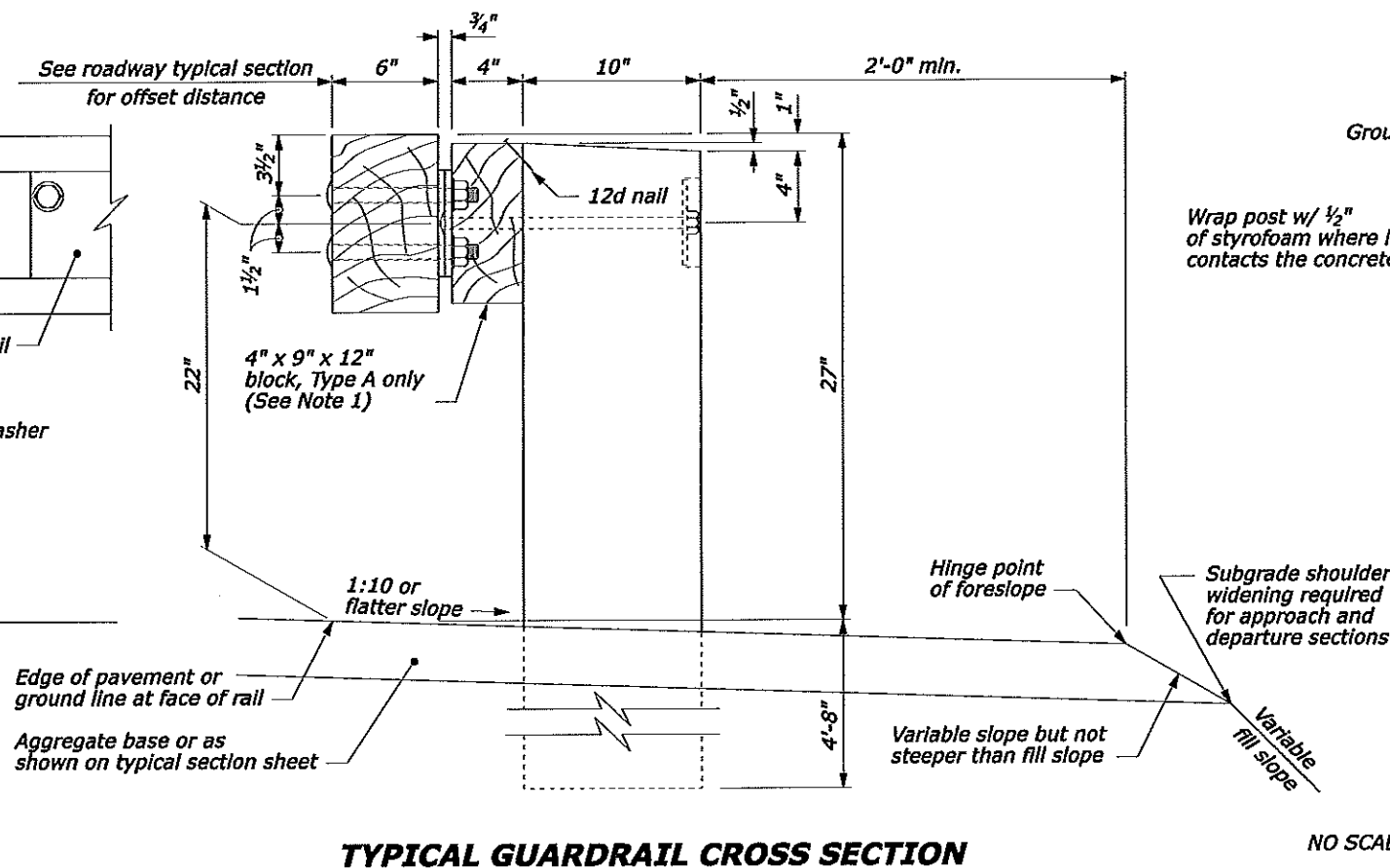
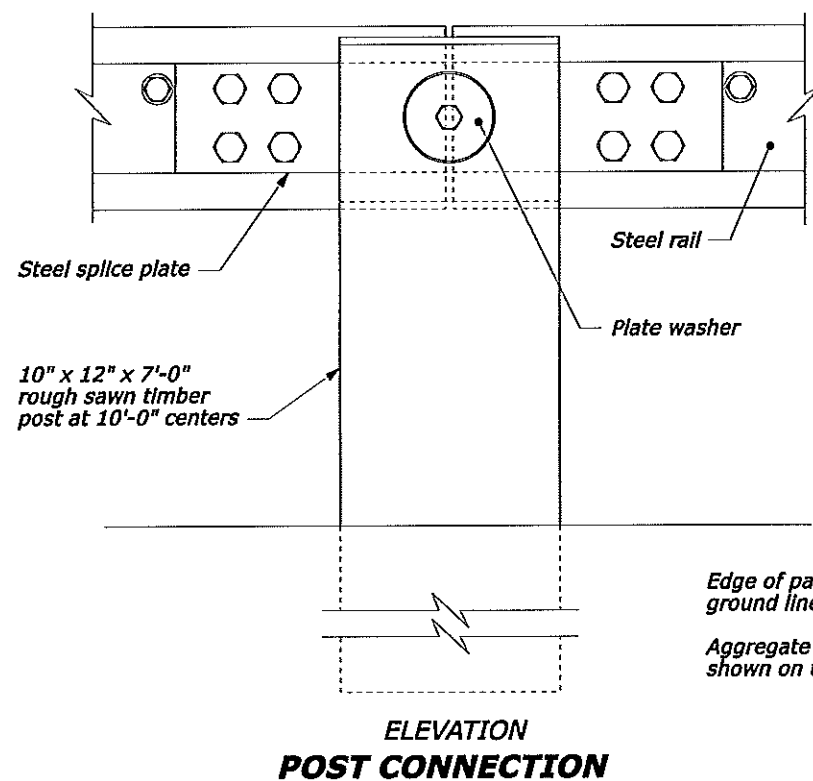


NOTE:

1. Use the Type A, blocked-out, system or the Type B, non-blocked-out, system as specified in the plans.
2. Use weathering steel for all structural steel and fastener hardware as specified.
3. Place a terminal section (See Standards 617-61 and 617-62) on both approach and trailing ends of barrier installations.



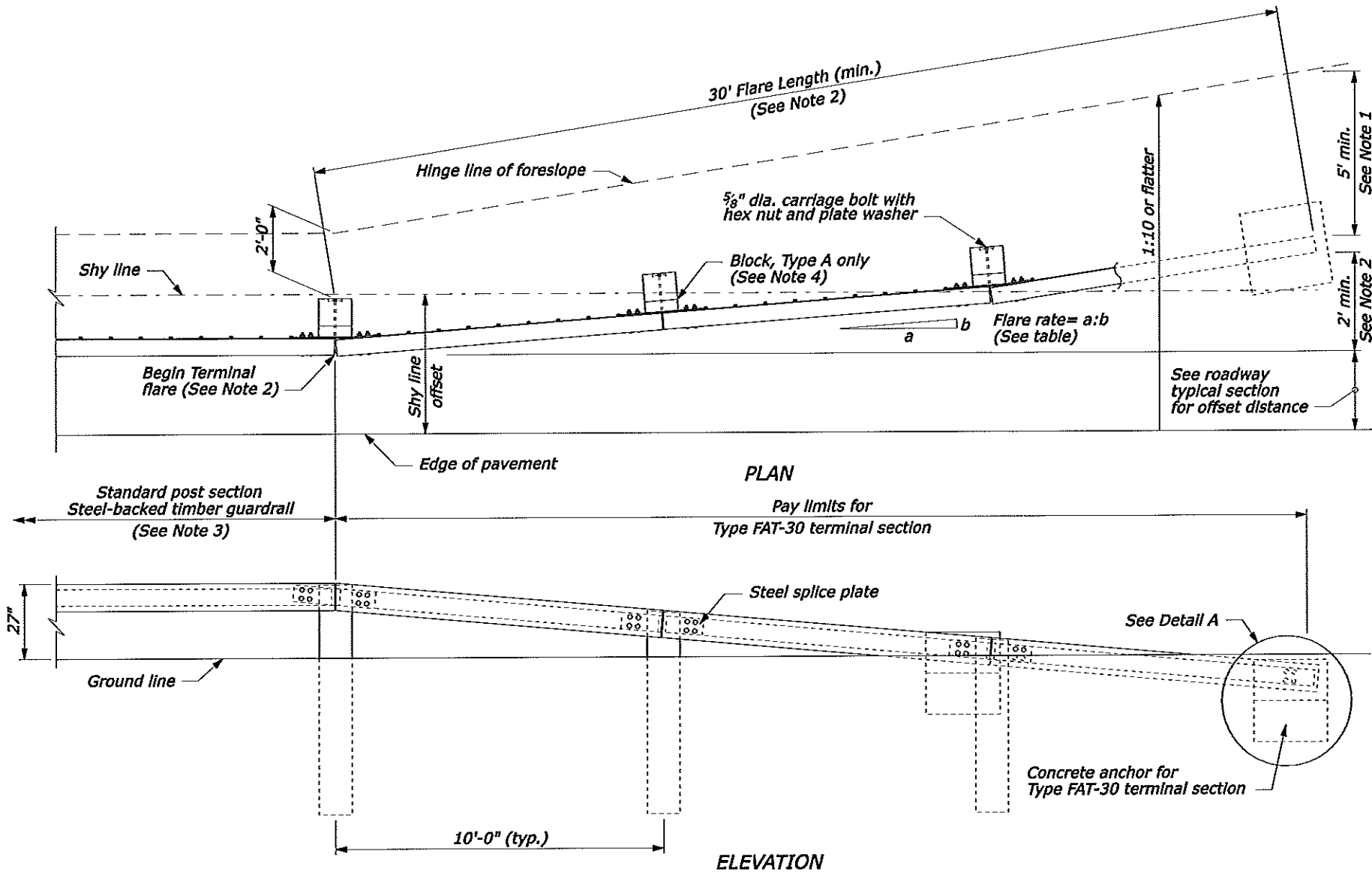
24" dia. round anchor is an acceptable alternative. Reduced size acceptable in solid rock.



NO SCALE

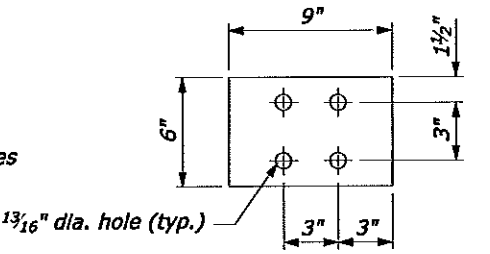
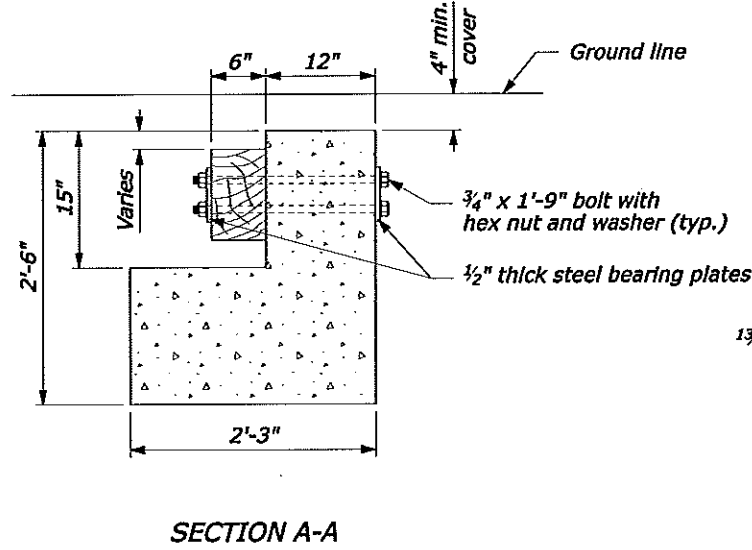
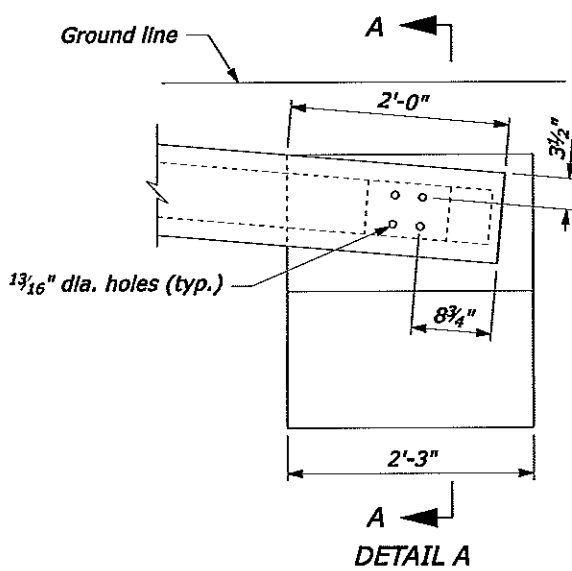
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
STEEL-BACKED TIMBER GUARDRAIL TYPE A & TYPE B	
STANDARD APPROVED FOR USE 3/1990 REVISED: 4/1994 6/2005	STANDARD 617-60

- NOTE:**
- 1. Extend the fill widening a minimum of 5 feet behind the guardrail, unless otherwise directed by the CO.
 - 2. The guardrail flare shown in the plan view is the minimum length and rate required. As directed by the CO, flare the guardrail so that the terminal section is outside the clear zone. If the terminal section cannot be located outside the clear zone, it should be flared as far as practical from the road at the maximum rate indicated on the Guardrail Flare Rates table.
 - 3. See Standard 617-60, Steel-Backed Timber Guardrail, Type SBTB and SBTB, for timber, structural steel, and hardware details.
 - 4. On the Type A, blocked-out guardrail, include the blocks in terminal section, except on the concrete anchor. For the Type B, non-blocked-out guardrail, no blocks are included.



APPROACH & DEPARTURE FLARE WITH FLARED ANCHOR TERMINAL (FAT)

GUARDRAIL FLARE RATE TABLE			
Design Speed (mph)	Shy line offset (ft)	Flare rate inside shy line (a:b)	Flare rate outside shy line (a:b)
60	8.0	26:1	14:1
50	6.5	21:1	11:1
40	5.0	16:1	8:1
30 and less	3.5	13:1	7:1



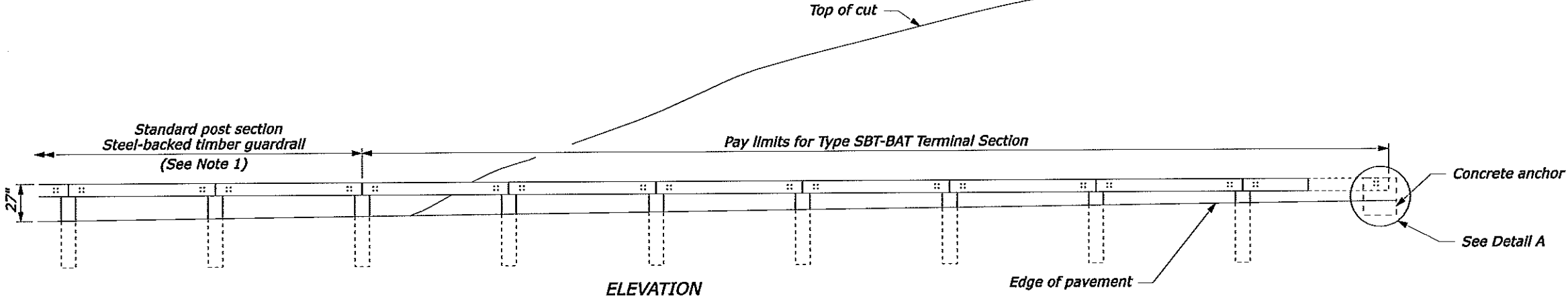
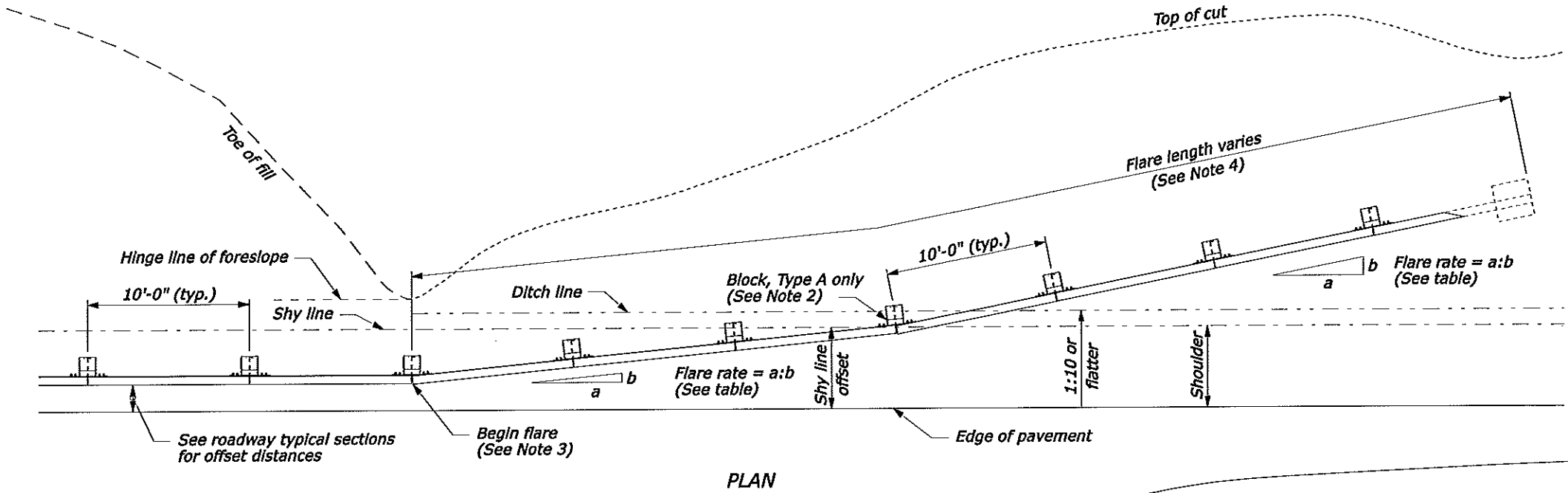
STEEL BEARING PLATE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD STEEL-BACKED TIMBER GUARDRAIL TERMINAL SECTION TYPE SBT FAT-30	
STANDARD APPROVED FOR USE 1/1990 REVISED: 4/1994 6/2005	STANDARD 617-61

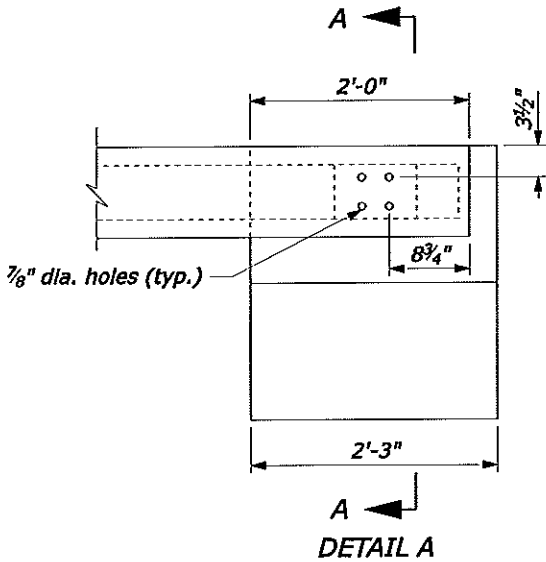
NOTE:

1. See Standard 617-60, SBTA and SBTB for timber, structural steel, and hardware details.
2. On the Type A, blocked-out guardrail, include the blocks in the terminal section, except on the concrete anchor. For the Type B, non-blocked-out guardrail, no blocks are included.
3. Begin the cut flares at the nearest post to a transition point between fill and cut as directed by the CO.
4. Extend the flare into the cut until a minimum 1-foot cover is obtained over the guardrail end.

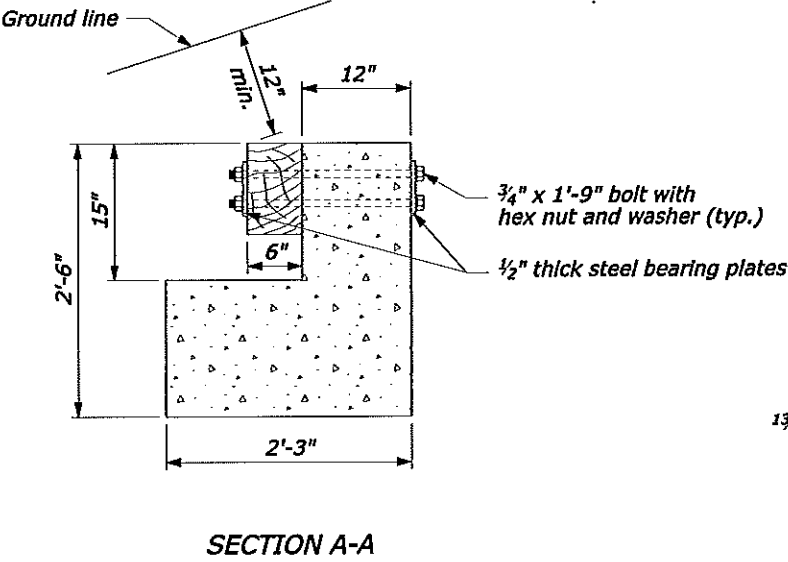


APPROACH & DEPARTURE FLARE WITH BACK SLOPE ANCHOR TERMINAL (BAT)

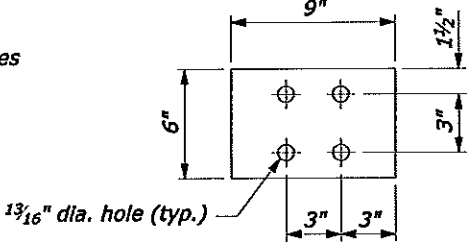
GUARDRAIL FLARE RATE TABLE			
Design Speed (mph)	Shy line offset (ft)	Flare rate inside shy line (a:b)	Flare rate outside shy line (a:b)
60	8.0	26:1	14:1
50	6.5	21:1	11:1
40	5.0	16:1	8:1
30 and less	3.5	13:1	7:1



CONCRETE ANCHOR



SECTION A-A



STEEL BEARING PLATE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD
STEEL-BACKED TIMBER GUARDRAIL
TERMINAL SECTION
TYPE SBT-BAT

STANDARD APPROVED FOR USE 3/1990
REVISED: 4/1994 6/2005

STANDARD
617-62